Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.(currently amended) A deposition baffle for protecting a dielectric window in a plasma processing chamber while facilitating inductive coupling of RF energy from a coil outside of the window, through the window and baffle, and into a plasma within the chamber, comprising:

an electrically conductive body having a window side and a plasma side;

the body having plurality of slots extending therethrough between the sides thereof;

the slots having walls defined by surfaces of the body and **[[**are**]]** configured to block line-of-sight paths through the body for particles in the chamber moving from the plasma side of the body to the window side of the body;

a plurality of the slots each having an electrically conductive ~~structural element~~ bridge therein fixed to the body ~~between~~ and electrically interconnecting opposite ~~surfaces thereof~~ walls of the slot to thereby interrupt the slot, on substantially only one of said sides of the body; and

the ~~elements~~ bridges having connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle.

2. (original) The baffle of claim **1** wherein:

the slots have chevron-shaped cross sections.

3. (currently amended) The baffle of claim **1** wherein:

the ~~elements are electrically conductive~~ bridges ~~electrically interconnecting opposite walls of the slots on the plasma side of the body, thereby interrupting~~ interrupt the slots on the plasma side of the body.

Claims **4-6** (canceled)

7. (currently amended) An inductively-coupled-plasma source for inductively coupling RF energy into a plasma processing space within a plasma processing chamber, comprising:

a dielectric window in a wall of the plasma processing chamber;

a coil outside of the window and connected to an RF power source;

a deposition baffle inside the plasma processing chamber and closely spaced from the dielectric window, between the plasma processing space and the window, the baffle having a body having a plurality of slots extending therethrough;

the slots being configured such that surfaces of the body bounding the slots block line-of-sight paths through the body for particles moving from the plasma processing space toward the window; and

a plurality of the slots each having an electrically conductive ~~structural element~~ bridge therein fixed to the body ~~between~~ and electrically interconnecting opposite ~~surfaces thereof~~ walls of the slot to thereby interrupt the slot, on substantially only one of said sides of the body.

8. (currently amended) The source of claim **7** wherein:

the bridges have connections ~~of the elements~~ to the body **[[**are**]]** distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle.

9. (original) The source of claim **7** wherein:

the slots have chevron-shaped cross sections.

10. (currently amended) The source of claim **7** wherein:

the ~~elements are~~ bridges ~~interrupting~~ interrupt the slots on the side of the body toward the plasma processing space.

Claims **11-13** (canceled)

14. (original) The source of claim **7** wherein:

the baffle and the coil form an RF circuit having a resonant frequency approximately at the frequency of the RF source.

15. (original) A plasma processing apparatus comprising a vacuum chamber, a substrate support within the chamber, and the inductively-coupled-plasma source of claim **7**.

16. (original) The apparatus of claim **15** further comprising:

a controller programmed to control the apparatus to ignite a plasma within the plasma processing space according to a plasma ignition method that includes the steps of:

energizing the coil with RF power of at least 300 watts, but less than 600 watts;

then, ramping DC power to an electrode coupled to the plasma processing space from 0 watts to up to a level of not more than approximately 20 watts over a period of several seconds and thereby igniting a plasma within the processing space;

upon ignition of the plasma, revising the RF power and the DC power to substrate processing parameters;

maintaining substrate processing parameters while processing a substrate; and

processing a substrate in the plasma processing space.

17. (previously presented) The apparatus of claim **16** wherein:

the chamber has a sputtering target therein that forms said electrode; and, the revising of the DC power includes setting the DC power to the target at a sputtering power level.

18.(previously presented) The apparatus of claim **16** wherein:

the ramping of the DC power includes ramping the power to a level that varies inversely with pressure in the chamber according to a relationship that produces approximately 5 watts when the pressure is approximately 65 mTorr and approximately 10 watts when the pressure is approximately 20 mTorr.

Claims **19-20** (canceled)

21. (currently amended) A deposition baffle for protecting a dielectric window in a plasma processing chamber while facilitating inductive coupling of RF energy from a coil outside of the window, through the window and baffle, and into a plasma within the chamber, comprising:

an electrically conductive body having a window side and a plasma side;

the body having plurality of slots extending therethrough between the sides thereof;

~~the slots having walls defined by surfaces of the body and configured to block line-of-sight paths through the body for particles in the chamber moving from the plasma side of the body to the window side of the body;~~

a plurality of the slots each having an electrically conductive ~~structural element~~ bridge therein fixed to the body ~~between~~ and electrically interconnecting opposite ~~surfaces thereof~~ walls of the slot to thereby interrupt the slot and form a current conducting path across the slot on substantially only one of said sides of the body~~; and~~

~~the elements having connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle~~.

22. (original) The baffle of claim **21** wherein:

the slots have chevron-shaped cross sections when viewed in a direction parallel to the length of the slots.

23. (currently amended) The baffle of claim **21** wherein:

the ~~elements are electrically conductive~~ bridges electrically ~~interconnecting~~ interconnect opposite walls of the slots on the plasma side of the body, thereby interrupting the slots on the plasma side of the body.

Claim **24** (canceled)

25. (original) An inductively-coupled-plasma source for inductively coupling RF energy into a plasma processing space within a plasma processing chamber, comprising:

a dielectric window in a wall of the plasma processing chamber;

a coil outside of the window and connected to an RF power source; and

the deposition baffle of claim **21**.

26. (currently amended) The source of claim **25** wherein:

the connections of the ~~elements~~ bridges to the body are distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle.

27. (original) The source of claim **25** wherein:

the slots have chevron-shaped cross sections when viewed in a direction parallel to the length of the slots.

28. (currently amended) The source of claim **25** wherein:

the ~~elements are~~ bridges ~~interrupting~~ interrupt the slots on the side of the body toward the plasma processing space.

Claims **29-31** (canceled)

32. (original) The source of claim **25** wherein:

the baffle and the coil form an RF circuit having a resonant frequency approximately at the frequency of the RF source.

33. (original) A plasma processing apparatus comprising:

a vacuum chamber, a substrate support within the chamber, and the inductively-coupled-plasma source of claim **25**.

34. (original) The apparatus of claim **33** further comprising:

a controller programmed to control the apparatus to ignite a plasma within the plasma processing space according to a plasma ignition method that includes the steps of:

energizing the coil with RF power of at least 300 watts, but less than 600 watts;

then, ramping DC power to an electrode coupled to the plasma processing space from 0 watts to up to a level of not more than approximately 20 watts over a period of several seconds and thereby igniting a plasma within the processing space;

upon ignition of the plasma, revising the RF power and the DC power to substrate processing parameters;

maintaining substrate processing parameters while processing a substrate; and

processing a substrate in the plasma processing space.

35. (original) The apparatus of claim **34** wherein:

the chamber has a sputtering target therein that forms said electrode; and, the revising of the DC power includes setting the DC power to the target at a sputtering power level.

36. (original) The apparatus of claim **34** wherein:

the ramping of the DC power includes ramping the power to a level that varies inversely with pressure in the chamber according to a relationship that produces approximately 5 watts when the pressure is approximately 65 mTorr and approximately 10 watts when the pressure is approximately 20 mTorr.

37. (new) The apparatus of claim **33** wherein the chamber has a sputtering target therein that forms said electrode and the apparatus further comprises a controller programmed to control the apparatus to ignite a plasma within the plasma processing space according to a plasma ignition method that includes the steps of:

energizing the coil with RF power of at least 300 watts but not more than 600 watts;

then, ramping DC power to an electrode coupled to the plasma processing space up to a level of not more than approximately 20 watts over a period of several seconds and thereby igniting a plasma within the processing space, the ramping of the DC power including ramping the power to a level that varies inversely with pressure in the chamber according to a relationship that produces approximately 5 watts when the pressure is approximately 65 mTorr and approximately 10 watts when the pressure is approximately 20 mTorr; and

upon ignition of the plasma, revising the RF power and the DC power to substrate processing parameters and maintaining substrate processing parameters while processing a substrate in the plasma processing space, the revising of the DC power including setting the DC power to the target at a sputtering power level.

38. (new) The baffle of claim **21** wherein:

the slots have walls defined by surfaces of the body and configured to block line-of-sight paths through the body for particles in the chamber moving from the plasma side of the body to the window side of the body.

39. (new) The baffle of claim **21** wherein:

the bridges have connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle.

40. (new) The baffle of claim **21** wherein:

the slots have chevron-shaped cross sections when viewed in a direction parallel to the length of the slots; and

the bridges electrically interconnect opposite walls of the slots on the plasma side of the body, thereby interrupting the slots on the plasma side of the body.

41. (new) The source of claim **25** wherein:

the slots have walls defined by surfaces of the body and configured to block line-of-sight paths through the body for particles in the chamber moving from the plasma side of the body to the window side of the body; and

the bridges have connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle.

42. (new) The source of claim **7** wherein:

the bridges have connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle; and

the bridges interrupt the slots on the side of the body toward the plasma processing space.

43. (new) The source of claim **7** wherein:

the bridges interrupt the slots on the side of the body toward the plasma processing space and have connections to the body distributed on the baffle so as to improve the uniformity of the distribution of power coupled into the plasma through the baffle without limiting the effectiveness of inductive coupling through the baffle; and

the baffle and the coil form an RF circuit having a resonant frequency approximately at the frequency of the RF source.